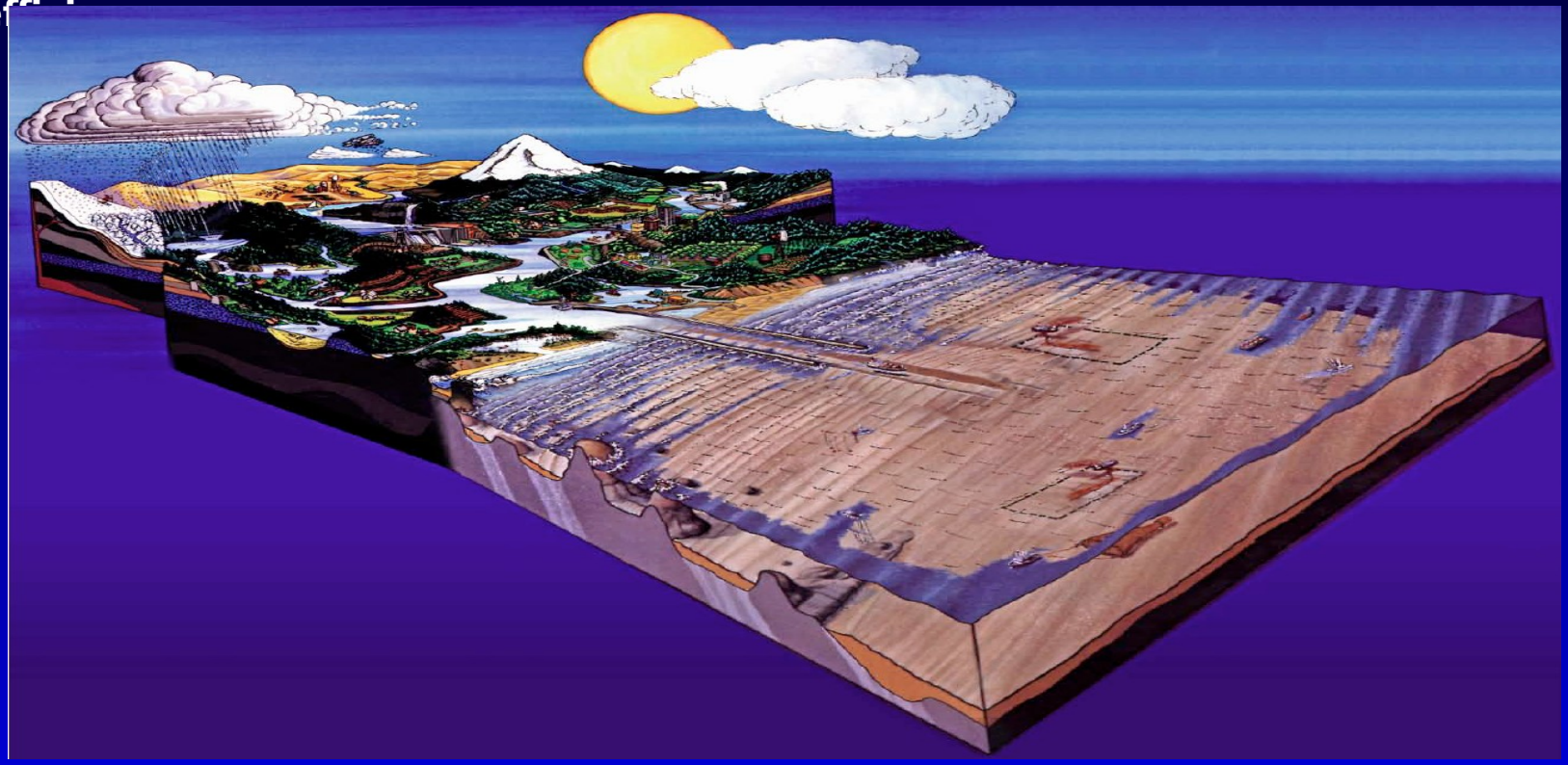
Regional Sediment Management Program (RSM) in the Gulf of Mexico

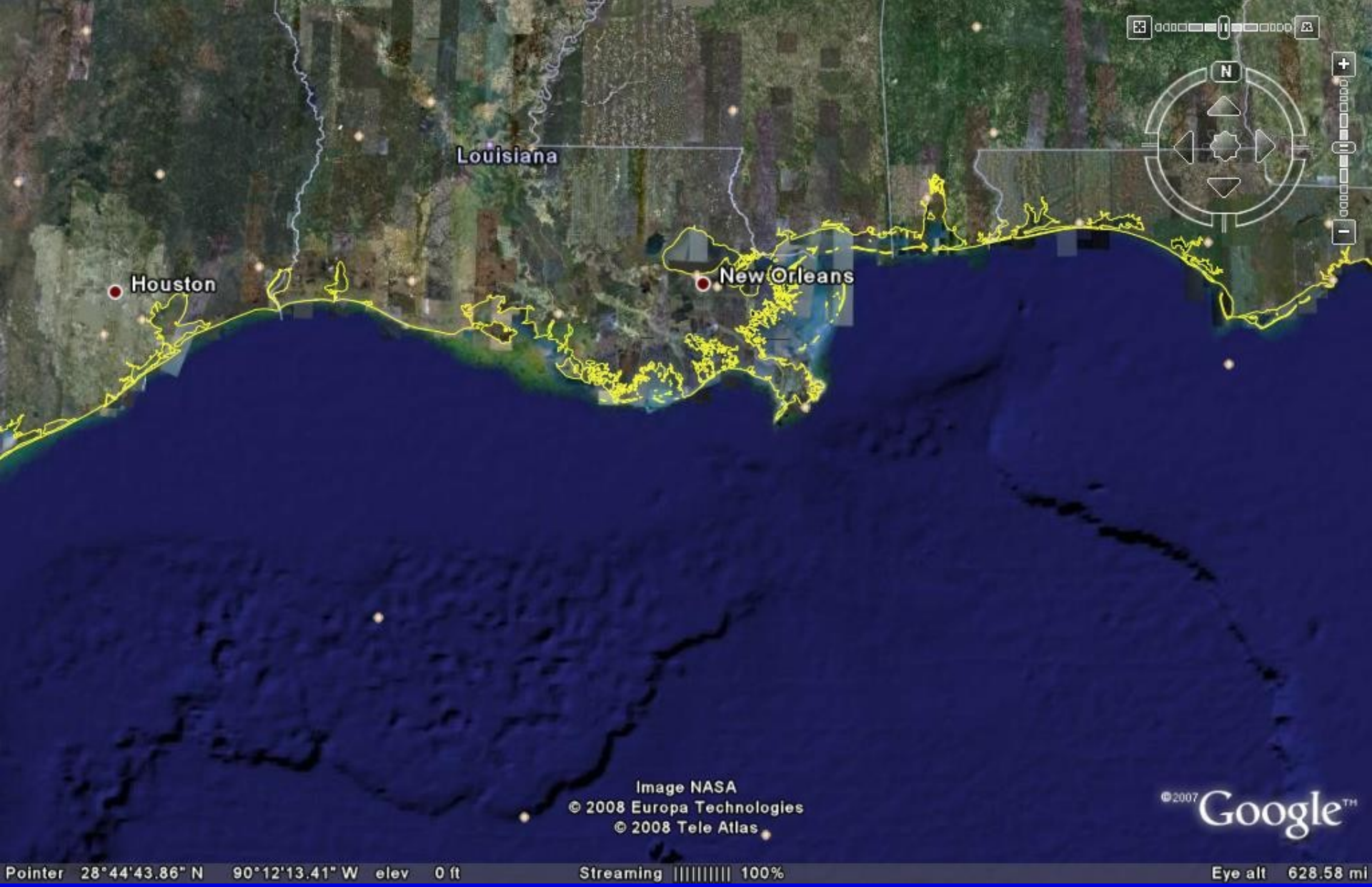
Objective

To improve sediment management practices within the Corps by demonstrating how to implement a system-based approach and how such an approach provides opportunities to achieve greater effectiveness and ef



RSM Approach

- Recognizes Sediment as a Resource
  - Integral to economic and environmental vitality
  - Consider the multiple inter-related resource needs and opportunities
- Hydrologic System provides context for managing projects/activities involving sand & other sediments
  - Coastal, river and estuarine systems
  - Regional sediment transport dynamics – sources, sinks, spatial and temporal transport dynamics
- Uses
  - Knowledge about the sediment transport dynamics as context for local project decisions and consideration of long range implications
  - Partnerships across federal, state, ngo and private interests to balance objectives and leverage resources.


Louisiana
Houston
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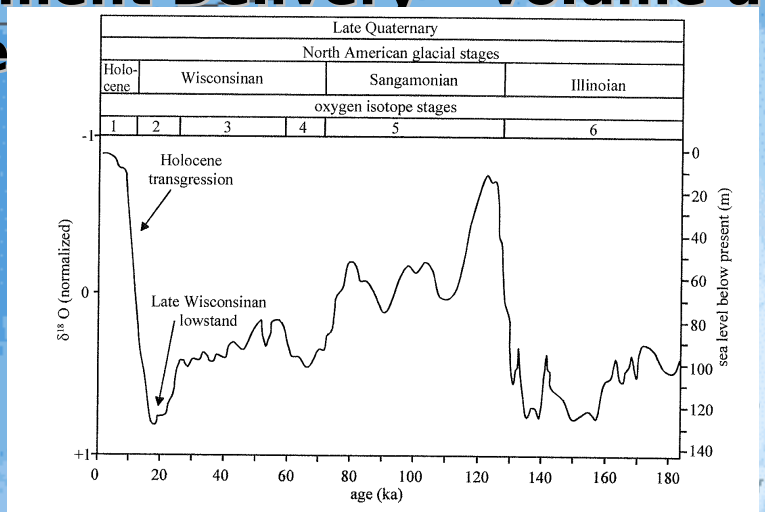
Pointer 28°44'43.86" N 90°12'13.41" W elev 0 ft
Streaming 100%
Eye alt 628.58 mi

Controls on Coastal Geomorphic Evolution

- **Framework Geology**
- **Energy Conditions – waves, tides, ocean currents, tropical storms**
- **Sediment Delivery – volume and physical prope**



National Atlas of the United States

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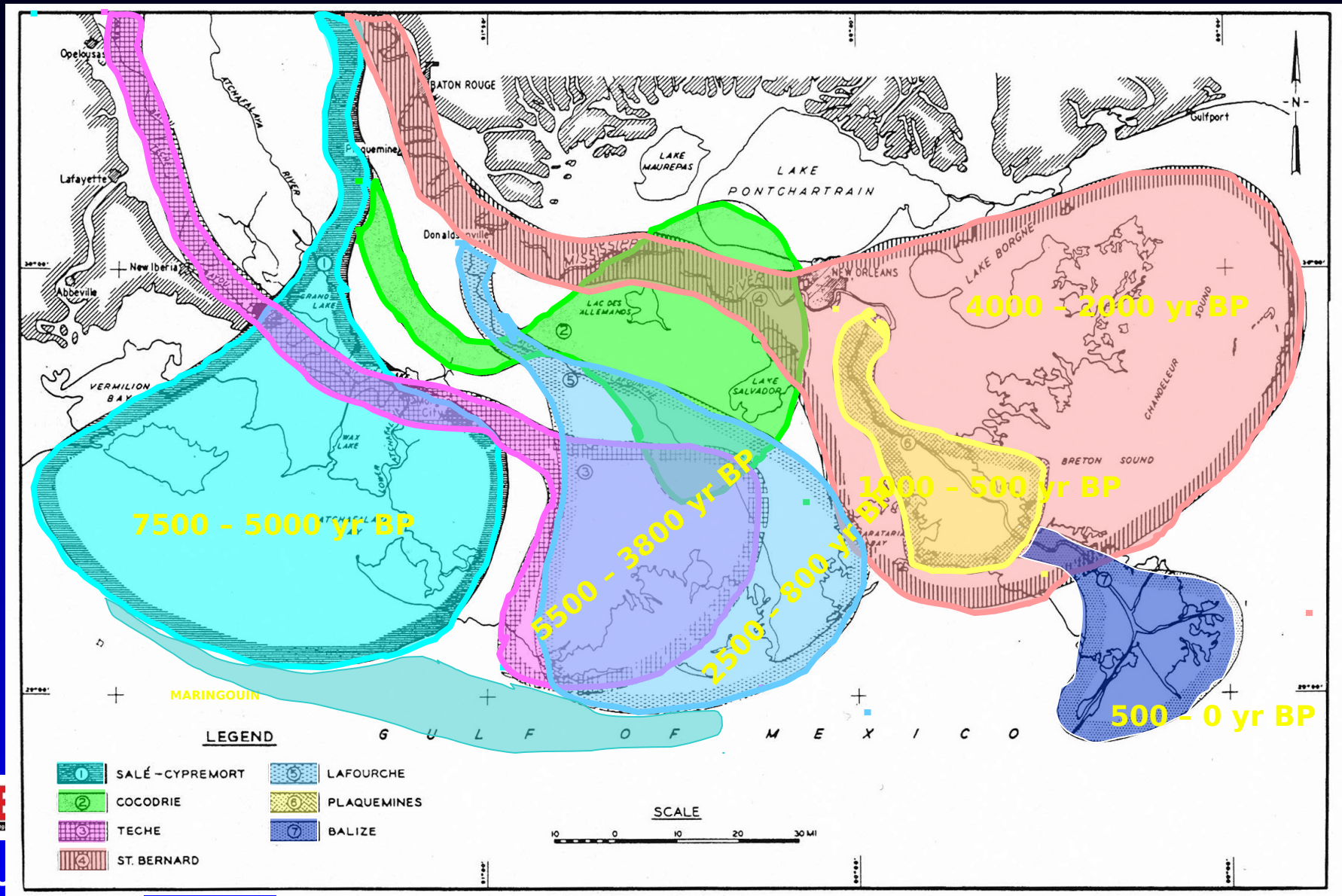
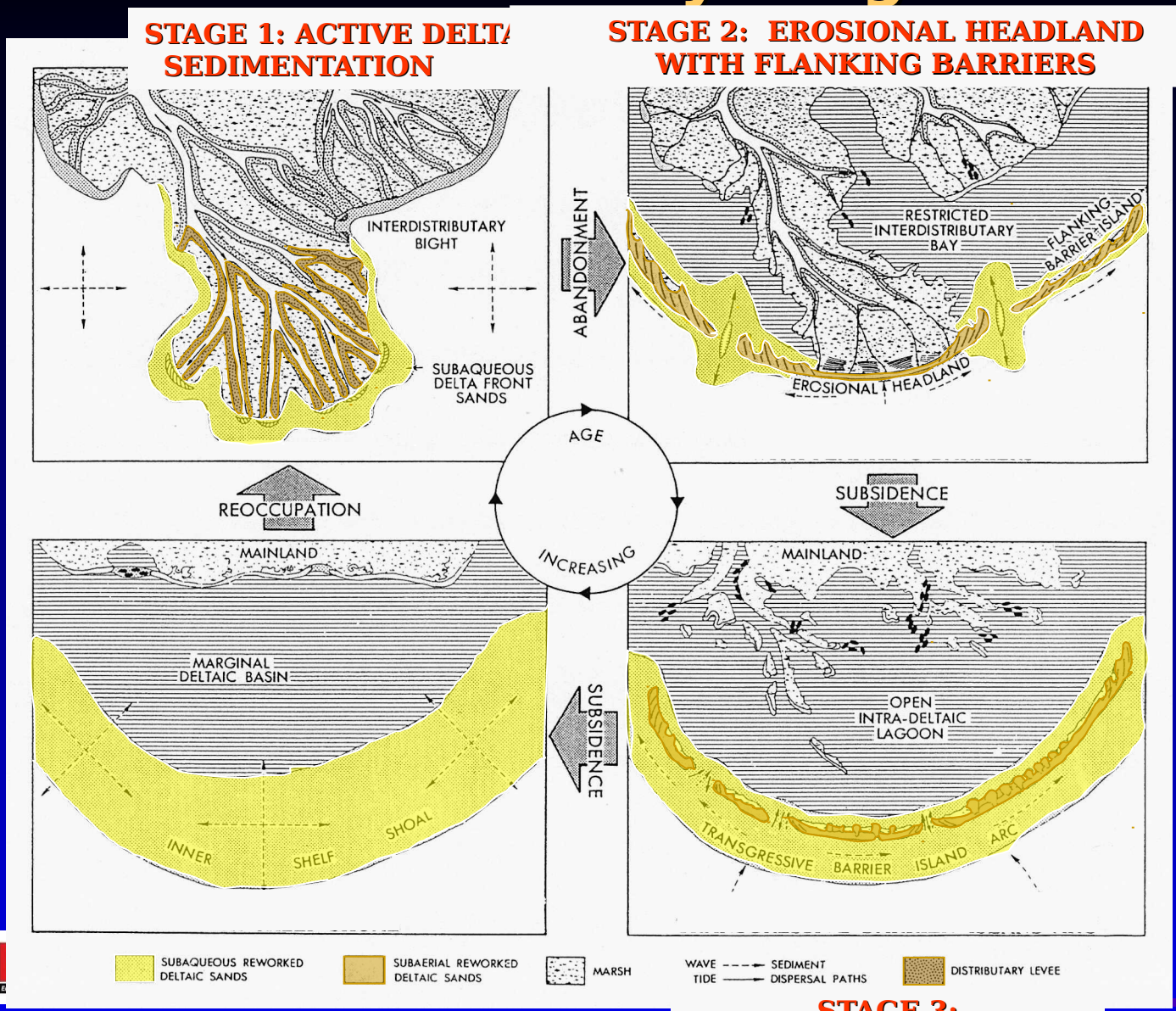
Sequence of Holocene Mississippi Delta Complexes



Chronologic sequence of Holocene Mississippi Delta lobes (from Kolb and Van Lopik, 1966; Fraiser, 1967).

Center

Deltaic Evolutionary Stages



Processes

A) Delta River Morphology Growth

B) Eroding Delta Headland forms flanking Barrier Is. & Spits

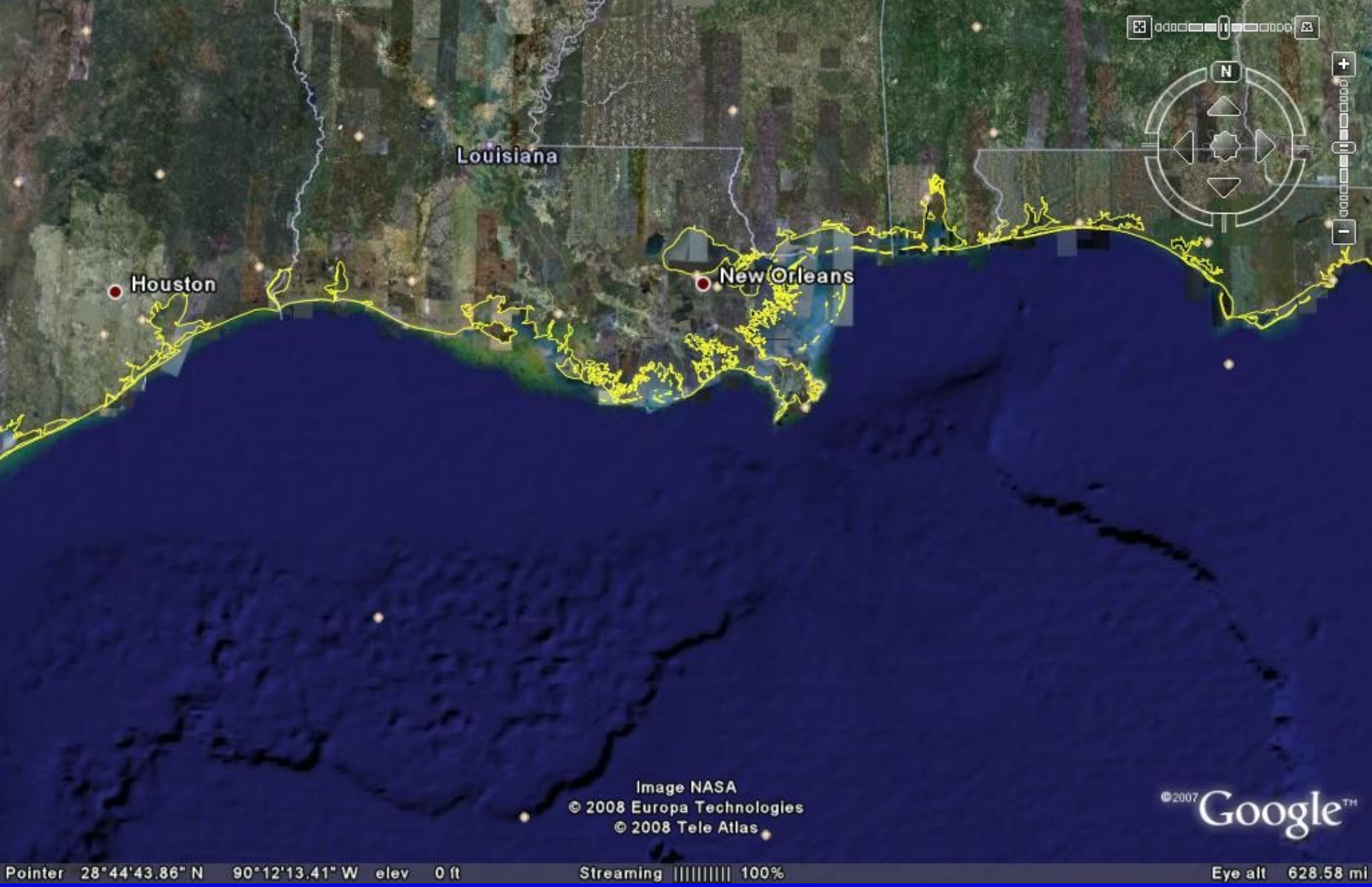
C) Transgressive Barrier Island Arc erosion

D) Loss of Barrier Island only Remnant Shoals left

US A… of Engineers

…& Development Center

…nland and Boyd, 1985)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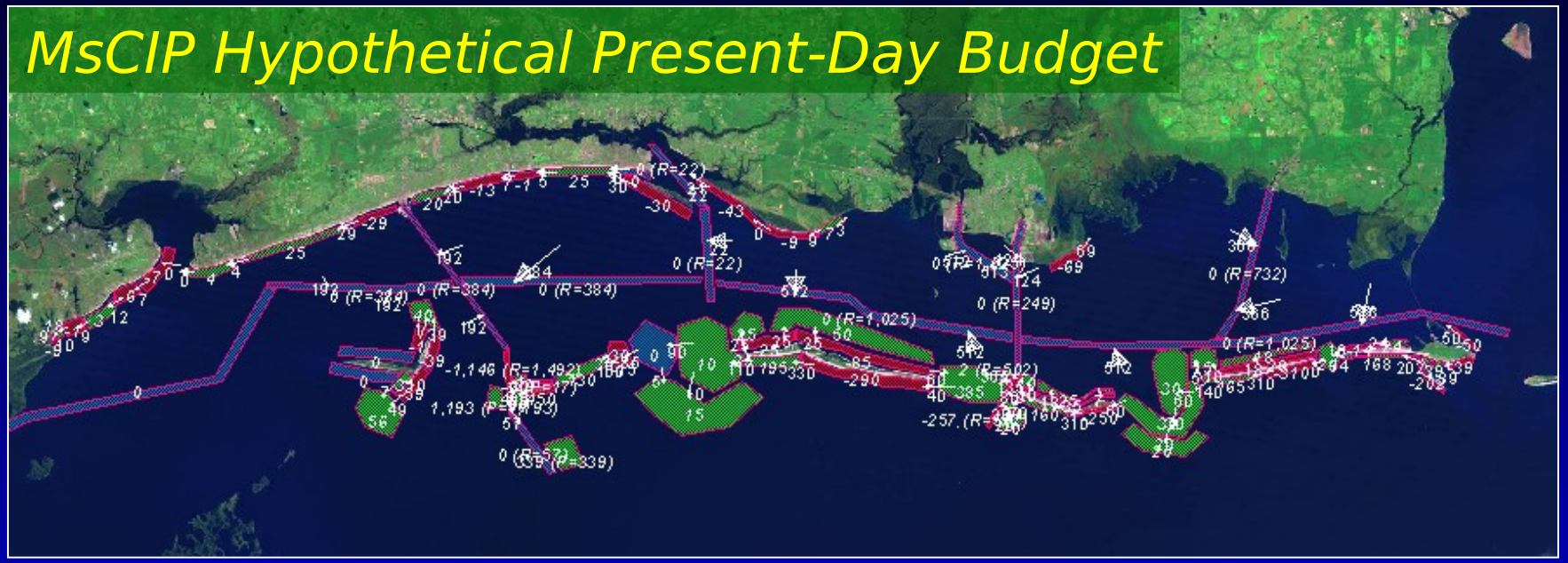
Mississippi
Alabama
Mobile Bay
Biloxi
Bayou La Batre
Gulfport
Pascagoula
Mississippi Sound
GIWW
Cat Island
Ship Is. Pass
Ship Island
Dog Keys Pass
Horn Island
Horn Is. Pass
Petit Bois Island
Petit Bois Pass
Dauphin Island
Area of Detailed Analysis
Area Considered for Regional Trends, Sources and Sinks
Navigation Channels

Regional Sediment Budget: Provides a detailed accounting of sediment movement as a tool for evaluating present and future RSM activities and decisions.

- Begins with understanding of sediment pathways—connections
- Complex hydrodynamic and sediment transport system
- Defensible, robust analysis with stakeholder buy-in
- Opportunity to show the benefits (economic and otherwise) of adopting an RSM approach

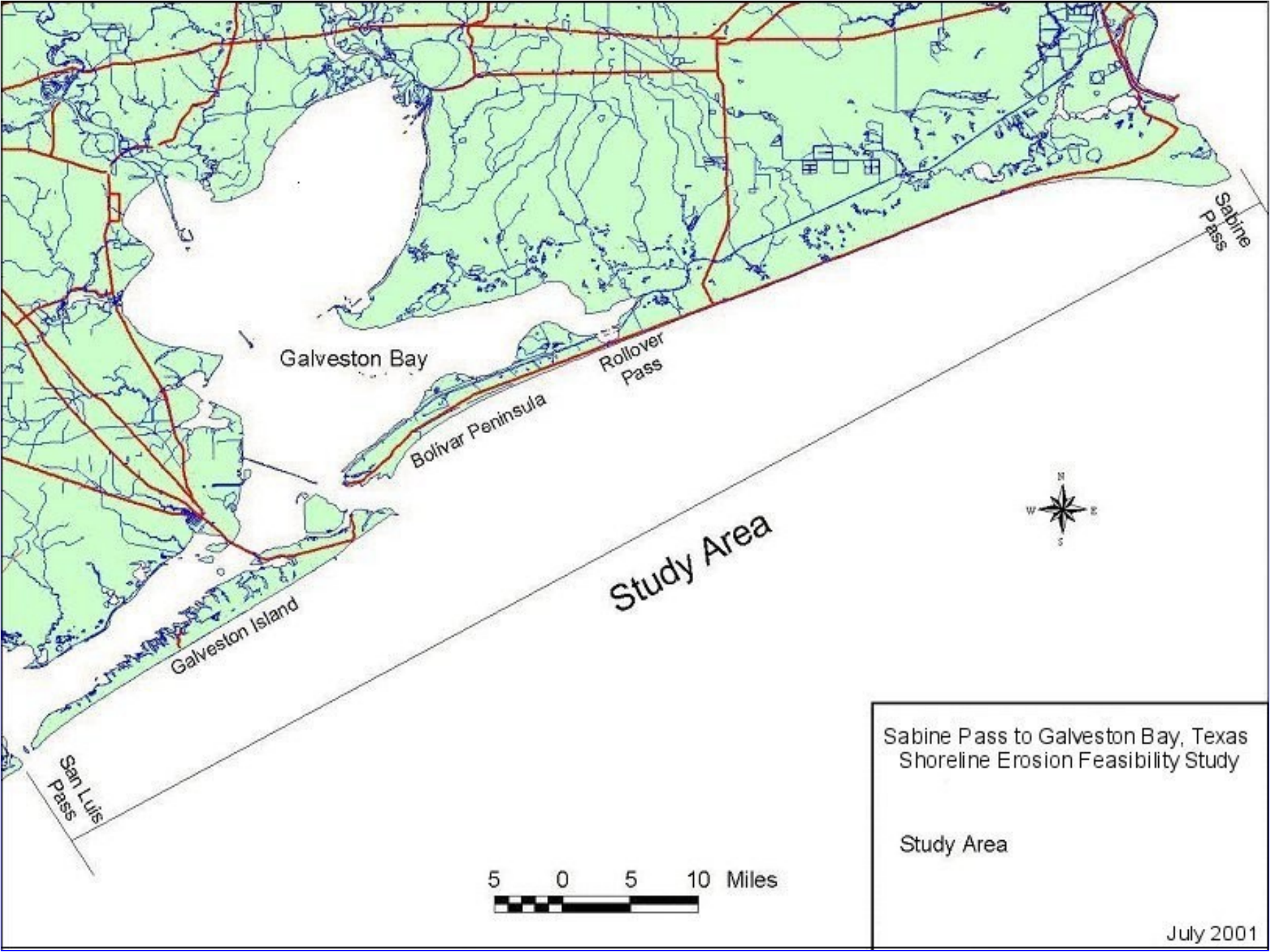
Operational Sediment Budget



(…not “operational”, rather “hypothetical present-day”)

For MsCIP, we weighted historical budget most heavily, with numerical budget filling in unknown information (mainland)

→ For a truly MsCIP Operational Budget, need to


Galveston Bay
Rollover Pass
Bolivar Peninsula
Sabine Pass
Study Area
Galveston Island
San Luis Pass
5 0 5 10 Miles
Sabine Pass to Galveston Bay, Texas
Shoreline Erosion Feasibility Study
Study Area
July 2001

Galveston Bay
Bolivar Peninsula
Rollover
Sabine Pass
Galveston Island
San Luis Pass
5 0 5 10 Miles

July 2001

Galveston Bay

Bolivar Peninsula

Galveston Island

Sabine Pass

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5 0 5 10 Miles

July 2001

Galveston Bay
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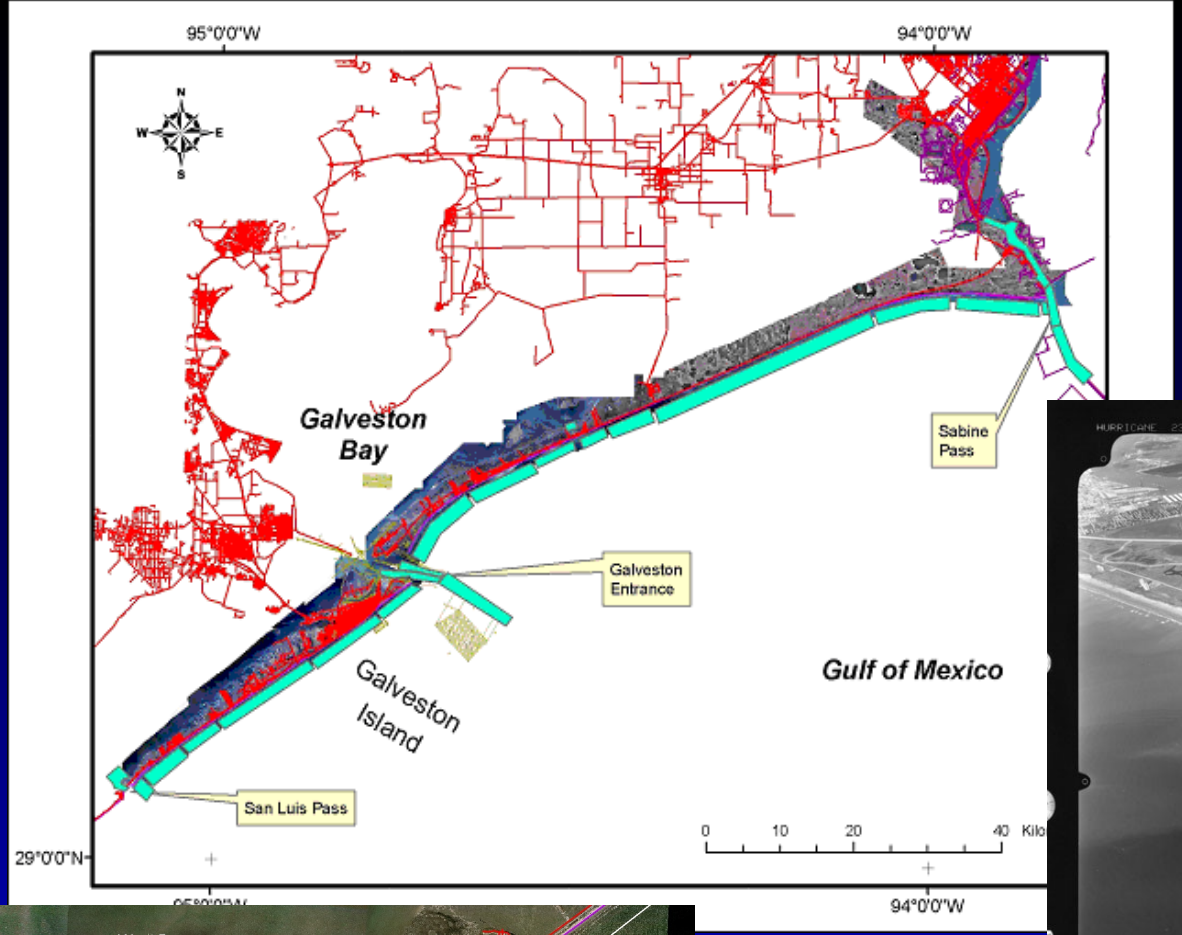
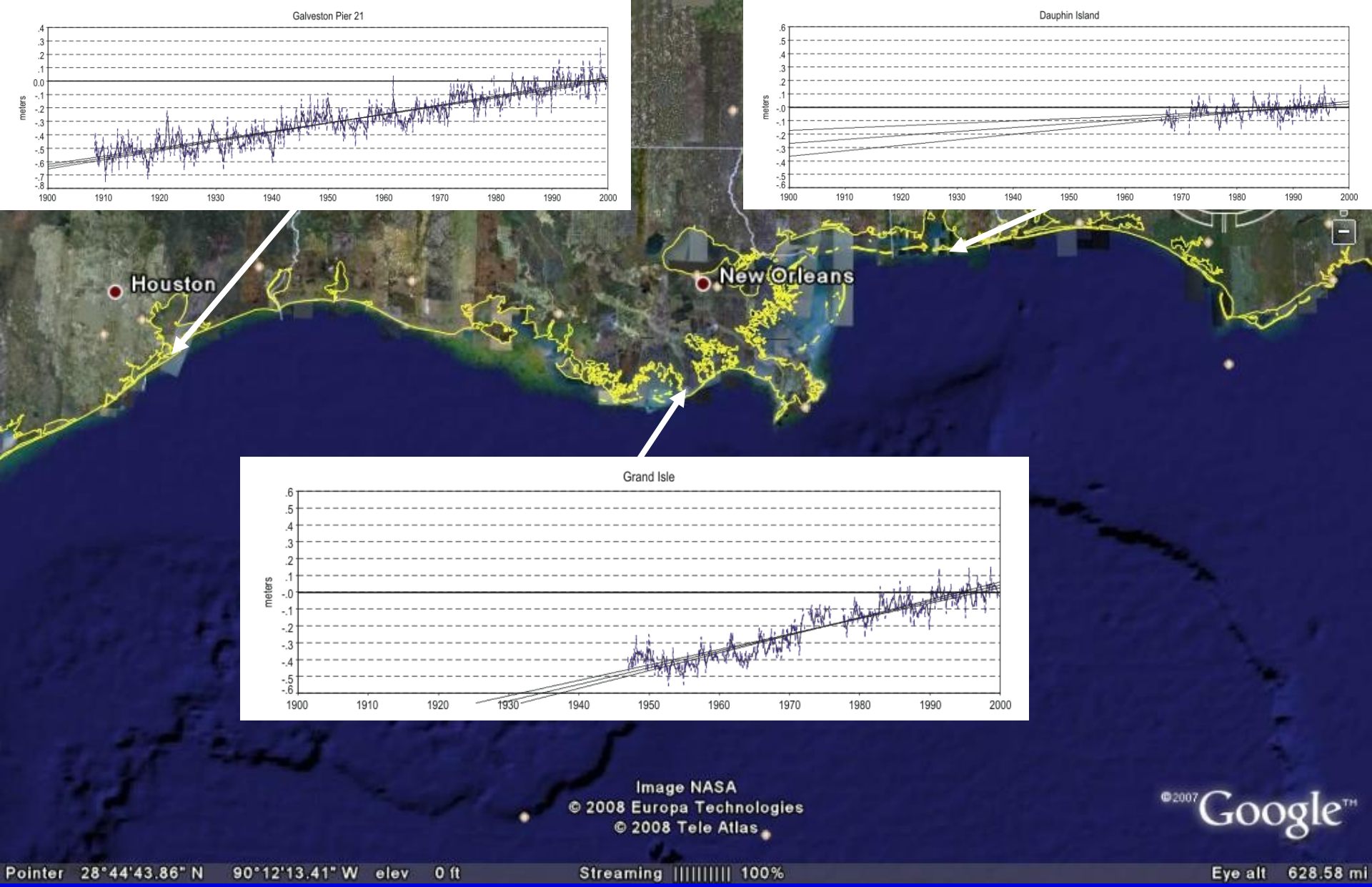
July 2001



Galveston Channel South Jetty

San Luis Pass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RSM Benefits

-- Increased knowledge of regional sediment systems – benefits all projects in a region

-- Reintroduction of sediment into littoral systems – reduce erosion, habitat restoration, marsh creation

-- Cost savings – reduced re-handling of material; extended dredging cycles; equipment sharing between projects

-- Shared regional-scale data management systems – shared accessible information, avoid duplication of data collection

-- Improved interagency and stakeholder relationships – generate opportunities for leveraging financial and other resources

The Gulf of Mexico Alliance:

Implementing the U.S. Ocean Action Plan in the Gulf of Mexico

Gulf Regional Sediment Management Master Plan

Science Assessment Workshop, St Pete, FL

1. Sediment Inventory – Sediment Resource Assessment (Mapping, Volume, Physical Properties, Extractability, Etc.)
2. Sediment Budget - Sediment Transport Dynamics, Sediment Sources and Sinks, Sediment Transport

Questions?

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